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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,337	02/05/2004	Fumihiko Yokoya	25908	3930
20529	7590	01/03/2007		
NATH & ASSOCIATES 112 South West Street Alexandria, VA 22314			EXAMINER WHALEY, PABLO S	
			ART UNIT 1631	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/771,337

Applicant(s)

YOKOYA ET AL.

Examiner

Pablo Whaley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

APPLICANT'S ELECTION

Applicant's election without traverse of Group I (Claims 1-8 and 10-15) in the reply filed on 10/13/2006 is acknowledged. Applicant's election traverse of Specie A (Gene No. 1, as recited in Table 1) is acknowledged. Claim 9 is hereby withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention or species, there being no allowable generic or linking claim.

CLAIMS UNDER EXAMINATION

Claims herein under examination are Claims 1-8 and 10-15 as they read on the elected species. An action on the merits follows.

INFORMATION DISCLOSURE STATEMENT

The information disclosure statements filed 8/20/04, 3/9/04, and 4/11/06 have been considered in full.

PRIORITY

Priority to foreign document JAPAN 2001-240974, filed 8/8/2001 has been acknowledged.

SEQUENCE RULES COMPLIANCE

This application contains tables of specific "gene numbers" and "unigene numbers" which are required to practice the instant invention [See p.27-29]. Therefore this application indirectly contains sequence disclosures that are encompassed by the definitions for nucleotide and/or

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amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 because it lacks SEQ ID Numbers. Applicants are also reminded that SEQ ID Nos are not required in Figures per se, however, the corresponding SEQ ID Nos then are required in the Brief Description of the Drawings section in the specification. Applicants are also reminded that a CD-ROM sequence listing submission may replace the paper and computer readable form sequence listing copies. Applicant(s) are given the same response time regarding this failure to comply as that set forth to respond to this office action. Failure to respond to this requirement may result in abandonment of the instant application or a notice of a failure to fully respond to this Office action.

CLAIM REJECTIONS - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-5 and 10-14 are rejected under 35 U.S.C. 101 because these claims are drawn to non-statutory subject matter. Claims 1-5 and 10-14 are directed to a "gene panel" comprising names and gene expression profiles of genes. As the specification does not define or fully and completely describe a "gene panel" such that it is necessarily interpreted as a physical product, and as "names" and "expression profiles" are not necessarily physical elements, the Examiner has reasonably interpreted said "gene panel" as merely a data listing. For these reasons, the instant claims are not statutory subject matter.

CLAIM REJECTIONS - 35 USC § 112, 2nd Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8, and 10-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "names and gene expression profiles of genes each showing, in hepatic stellate cells, an increased expression level." It is unclear as to the intended meaning of "showing, in hepatic stellate cells." In this context, it cannot be determined as to exactly what is "showing" in the cells (i.e. actual genes, gene expression profiles, or something else). If applicant simply intends for gene showing "in hepatic stellate cells" to mean the actual genes or expression levels are within hepatic stellate cells, the claims should state this clearly. Clarification is requested.

Claim 2 recites the limitation "model animal." This term is indefinite as "model animal" could be interpreted to be an actual model animal (i.e. non-living), virtual animal (i.e. simulated), real animal (i.e. living), or otherwise. Clarification is requested.

The preamble of claim 6 recites a "method of producing a gene panel." However, as there is no step directed to "producing a gene panel" and as claim 6, step (c), results in the identification of genes, it is unclear in what way the steps of claim 6 achieve the purpose of the preamble. Clarification is requested. Claims 3-5 and 7, 8, and 10-15 are also rejected as they depend directly or indirectly from claims 1 and 6.

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Claims 10-11 recite redundant limitations. Claim 10 depends from claim 2, which is redundant. Claim 11 depends from claim 3, which is also redundant because claim 3 depends from claim 2. It is unclear in what way claims 10-11 further limit claim 2. Clarification is requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 6-8, 10, 11, and 15 are rejected under 35 U.S.C. 103(a) as being made obvious by Zhumabayeva et al. (CLONTECHniques, April 2001, p.1-2), in view of Kristensen et al. (Hepatology, 2000, Vol. 32, No. 2, p.268-277).

Zhumabayeva et al. teach a method of temporal and differential gene expression using microarrays (i.e. gene chips) (Abstract). More specifically, Zhumabayeva et al. teach the following aspects of the instantly claimed invention:

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- Microarray of gene expression (i.e. gene panel) comprising names and gene expression data showing increased expression levels [Figs. 1 and 2], as in instant claim 1. As a microarray is reasonably interpreted as a “gene chip”, instant claims 8 and 15 are also anticipated.
- Increased expression levels correspond to a difference of expression levels in human tissues [Fig. 1].
- Gene expression levels taken after overnight hybridization [p.1, Col. 3, ¶ 2], which correlates to time-varying expression as in instant claims 3 and 10.
- Measuring expression levels of various genes in normal (N) and tumor (T) states [Fig. 1], which equates to active and resting states, as in instant claim 6.
- Comparison of expression levels [p.2, ¶ 2 and ¶ 3] and identification of genes showing increased (or decreased) expression levels [Fig. 1], as in instant claim 6.

Zhumabayeva et al. do not specifically teach hepatic stellate cells or an animal model having cirrhosis and hepatic fibrosis, as in instant claims 2, 4, and 11.

Kristensen et al. teach an animal model for the proteomic analysis of cellular and secreted proteins from rat hepatic stellate cells [Abstract]. More specifically, Kristensen et al. teach the following aspects of the instantly claimed invention:

- Liver fibrosis was induced in a rat model population [p.269, Materials and Methods, ¶ 3], as in instant claims 2, 4, and 11. As cirrhosis (www.answers.com) is well known to be a chronic disease of the liver characterized by the replacement of normal tissue with fibrous tissue, a teaching for animals with liver (i.e. hepatic) fibrosis is inherently a teaching for animals with liver cirrhosis.

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- Gene panel of expression levels from normal (quiescent) and activated hepatic stellate cells obtained over time [Fig. 2], as in instant claims 1, 2, and 3.

Thus it would have been obvious to someone of ordinary skill in the art at the time of the instant invention to combine the hepatic stellate cell protein expression data of Kristensen et al. with the gene expression profiling array information of Zhumabayeva et al., where the motivation would have been to improve gene expression profiling of liver fibrosis by using the rapid microarray-based method and differential profiling array taught by Zhumabayeva et al. One of ordinary skill in the art would have had a reasonable expectation of successfully combining the protein expression data of Kristensen et al. with the gene profiling array of Zhumabayeva et al. as both teach gene expression analysis of proteomic data.

Claims 5 and 12-14 are rejected under 35 U.S.C. 103(a) as being made obvious by Zhumabayeva et al. (CLONTECHniques, April 2001, p.1-2), in view of Kristensen et al. (Hepatology, 2000, Vol. 32, No. 2, p.268-277), as applied to claims 1-4, 6-8, 10, 11, and 15 above, and further in view of Jabs et al. (Human Genetics, 1994, Vol. 93, p.600-602).

Zhumabayeva et al. and Kristensen et al. make obvious a method of temporal and differential gene expression using microarrays and rat hepatic stellate cells, as set forth above.

Zhumabayeva et al. and Kristensen et al. do not specifically teach the use of the ATP synthase gene, as in claims 5 and 12-14 and the elected Species A. However, Zhumabayeva et al. clearly teach probes and expression profiles of housekeeping genes involved in the gastrointestinal system, which motivates the use of genes involved in liver disease.

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Jabs et al. teach the use of human homologues of the rat liver alpha subunits of the ATP synthase gene [Table 1 and Abstract] in the investigation of gene expression, as in claims 5 and 12-14 and the elected Species A.

Thus it would have been obvious to someone of ordinary skill in the art at the time of the instant invention to use the ATP synthase gene with the gene panel made obvious by Zhumabayeva et al. and Kristensen et al., where the motivation would have been to improve gene expression profiling of liver fibrosis by using the rapid microarray-based method and differential profiling array taught by Zhumabayeva et al. One of ordinary skill in the art would have had a reasonable expectation of successfully combining the ATP synthase gene with the gene panel made obvious by Zhumabayeva et al. and Kristensen et al. as both Jabs et al. and Kristensen et al. teach gene expression analysis using rat liver genes.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Whaley whose telephone number is (571)272-4425. The examiner can normally be reached on 9:30am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached at 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Pablo S. Whaley

Patent Examiner
Art Unit 1631
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Scott Crow
Patent Examiner
12/21/06